Docket No.: 319578007US1
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Gaidjiergis et al.

Application No.: 10/039,064 | Confirmation No.: 3578

Filed: January 4, 2002 | Art Unit: 1791

For: METHODS AND APPARATUS FOR MANUFACTURING FIBER-CEMENT SOFFITS WITH AIR VENTS | Examiner: P. N. Butler

APPEAL BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Madam:

As required under § 41.37(a), this brief is filed more than two months after the Notice of Appeal filed in this case on October 29, 2008, and is in furtherance of said Notice of Appeal.

The fees required under § 41.20(b)(2) are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF.

INTRODUCTION – TABLE OF CONTENTS

This brief contains items under the following headings as required by 37 C.F.R. § 41.37 and M.P.E.P. § 1205.2:

I. REAL PARTY IN INTEREST 1
II. RELATED APPEALS AND INTERFERENCES 1
III. STATUS OF CLAIMS 1
IV. STATUS OF AMENDMENTS 1
V. SUMMARY OF CLAIMED SUBJECT MATTER 2
A. Overview of Appellants' Technology 2
B. Independent Claim 19 3
C. Independent Claim 25 4
D. Independent Claim 31 4
E. Independent Claim 38 5
F. Independent Claim 42 6
G. Independent Claim 49 6
VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL 7
A. The Examiner's Rejections 7
B. Issues on Appeal 8
VII. ARGUMENT 9
A. Legal Standard for Obviousness 9
B. Cited References 11
1. U.S. Patent No. 3,962,921 (Kober) 11
2. U.S. Patent No. 4,580,374 (Quinnell) 12
3. Background Information 12
C. Rejection of claims 18-22, 24-39, 41-43 and 45-55 under 35 U.S.C. § 112, first paragraph 13
D. Rejection of claims 18 and 19 under 35 U.S.C. § 103(a) over Kober, Quinnell and the Background Information 16
1. The Combination of Kober, Quinnell and the Background Information Fails to Teach, *inter alia*, Driving Punches Through Only a Portion of a Thickness of the Cured Fiber-Cement Panel Such That the Punches Penetrate to a Depth

of Approximately 0.0625-0.1875 Inch Without Passing Completely Through the Thickness of the Panel 17

2. Kober Cannot Teach That the Punch Penetration Depth is a "Result-Effective Variable" Because a Person of Ordinary Skill in the Art Would Understand that Kober's Process of Forming Holes in a Filamentary Mat Requires the Punches to Pass Completely Through Such Mats 19

3. A Person of Ordinary Skill in the Art Would Not Use Kober's Press for Punching Holes Through a Cured Fiber-Cement Panel When Kober Teaches Punches and Dies With Substantially Equal Diameters and the Background Information Teaches Very Small Punch/Die Clearances Did Not Successfully Punch Holes Through Cured Fiber-Cement Panels 19

4. A Person of Ordinary Skill in the Art Would Not Use Kober's Press to Punch Holes In the Asbestos-Cement Boards taught by Quinnell to Form Soffit Boards Because Quinnell Teaches that Producing Ventilation Slots in Cement-Based Boards is not Desirable 20

E. Rejection of claims 20-22, 38, 39, 41-43 and 45-55 under 35 U.S.C. § 103(a) over Kober, Quinnell, the Background Information and Hugo 21

1. Claims 20-22 21

2. Claims 38, 39, 41-43 and 45-48 23

3. Claims 49-55 23

F. Rejection of claims 24 and 25 under 35 U.S.C. § 103(a) over Kober, Quinnell, Vinson and the Background Information 24

G. Rejection of claims 26-30 under 35 U.S.C. § 103(a) over Kober, Quinnell, Vinson, the Background Information and Hugo 25

H. Rejection of claims 31 and 32 under 35 U.S.C. § 103(a) over Kober, Quinnell, the Background Information and Kober II 25

I. Rejection of claims 33-37 under 35 U.S.C. § 103(a) over Kober, Quinnell, the Background Information, Kober II and Hugo 26

VIII. CLAIMS 27

Appendix A – Claims 28

Appendix B – Evidence 41

Appendix C – Related Proceedings 42

I. REAL PARTY IN INTEREST

On July 5, 2005, each of the inventors assigned their interest to Shear Tech, Inc. in the assignment recorded at Reel/Frame No. 017234/0426 on November 21, 2005. Therefore the real party in interest for this appeal is Shear Tech, Inc.

II. RELATED APPEALS AND INTERFERENCES

There are no other appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

There are 35 claims currently pending in this application. The claims on appeal are claims 18-22, 24-39, 41-43 and 45-55. The current status of the claims is as follows:

- Claims pending : 18-22, 24-39, 41-43 and 45-55
- Claims allowed : (none)
- Claims rejected : 18-22, 24-39, 41-43 and 45-55
- Claims cancelled : 1-17, 23, 40, 44 and 56-81
- Claims withdrawn : (none)

IV. STATUS OF AMENDMENTS

The pending claims were last amended on January 28, 2008, in response to a Non-Final Office Action filed along with a Declaration of John T. Whitehead under 37 C.F.R. § 1.132 (the "First Whitehead Declaration"). Appellants filed an Amendment After Final Action Under 37 C.F.R. § 1.116 on October 29, 2008, to present a Second Declaration of John T. Whitehead under 37 C.F.R. § 1.132 (the "Second Whitehead Declaration") that addresses a rejection under 37 C.F.R. § 112, first paragraph, first raised in the Final Office Action dated April 29, 2008. No amendments to the claims were made in the Amendment of October 29, 2008, and the Examiner issued an Advisory Action on May 12, 2009, in response to the Amendment of

October 29, 2008. Accordingly, the claims enclosed herein as Appendix A incorporate the amendments indicated in the paper filed by Appellants on January 28, 2008, and the First Whitehead Declaration and the Second Whitehead Declaration enclosed herein as Appendix B were entered on April 9, 2008, and May 12, 2009, respectively.

V. SUMMARY OF CLAIMED SUBJECT MATTER

A. Overview of Appellants' Technology

Appellants' technology is directed to forming soffit panels from cured cellulose based fiber-cement panels. (Specification at [0018] and [0019].) Fiber-cement siding products are typically made from a composition having cement, cellulosic materials and a binder. (Specification at [0002].) The fiber-cement composition is pressed, cured and then cut into panels, shakes and planks to form finished siding products that are ready to be installed on a structure. (Specification at [0002].) Several buildings also have soffits installed under the eaves where the roof overhangs the exterior walls. (Specification at [0003].) Soffits are conventionally made from wood, metal (aluminum) or plastics, but many contractors and manufactured builders would rather install soffits made from fiber-cement to avoid the problems associated with these other types of materials. (Specification at [0003].) Manufacturing fiber-cement products, however, can be difficult because cutting cured fiber-cement products with circular saws (e.g., a rotating abrasive disk) or drilling holes through the cured fiber-cement panels produces a fine dust that is unpleasant and difficult to clean. (Specification at [0004] and [0005].) Drilling cured fiber-cement panels, moreover, is not generally feasible in large scale production because it is too time-consuming and the abrasive fiber-cement quickly wears down the drill bits. (Specification at [0005].)

Appellants' technology provides low cost processes for forming a fiber-cement soffit from cured fiber-cement panels having a length, a width and a thickness. (Specification at, *inter alia*, [0019].) The panels manufactured by James Hardie Building Products of Fontana, California, described in the Specification at [0005] and [0019] are cured pieces. For example, Appellants' processes can include placing the fiber-cement panel between (a) a punch assembly having a

punch plate and a plurality of punches and (b) a support assembly having a support plate with a plurality of holes. (Specification at [0022]-[0024] and [0039]-[0042], and Figures 2, 3A, 3B, 6A and 6B.) Appellants' processes can also include driving the punches into and through at least a portion of the thickness of the fiber-cement panel to form a plurality of apertures by ejecting plugs from the fiber-cement panel through the holes in the support plate. (Specification at [0027] and [0042], and Figures 3B and 6B.) The cured fiber-cement panel has a thickness of approximately 0.25-0.31625 inch and the punches penetrate into the panel to a depth of approximately 0.0625-0.1875 inch without passing completely through the panel. (Specification at [0027].) Appellants' technology produces finished soffit from cured fiber-cement panels without producing noticeable amounts of dust or other small particulate matter. (Specification at [0029].) Appellants' technology also produces well-defined holes without delamination by providing a sufficiently large radial clearance between the punches and the holes to reduce binding while still maintaining a high quality, well-defined hole at the front side of the soffit. (Specification at [0030] and [0031].)

B. Independent Claim 19

Claim 19 is directed toward a method of fabricating a fiber-cement soffit 12 that includes providing a cured fiber-cement panel 14 having a length, a width and a thickness. (Specification at [0002], [0004]-[0006], [0018] and [0019], and Figures 2, 3A, 3B, 5 and 6B.) The method of claim 19 further includes placing the fiber-cement panel 14 between a punch assembly 40/240 and a support assembly 60/260, wherein the punch assembly 40/240 has a punch plate 42/242 and a plurality of punches 50/250 coupled to the punch plate 42/242 and the support assembly 60/260 has a support plate 62/262 with a plurality of holes 64/264. (Abstract, Specification at [0007]-[0009], [0021], [0022] and [0039]-[0042], and Figures 2, 3A, 3B, 6A and 6B.) The method further includes driving the punches 50/250 into and through at least a portion of the thickness of the fiber-cement panel 14 to form a plurality of apertures 16 in the fiber-cement panel by ejecting plugs 18 from the fiber-cement panel through the holes 64/264 in the support plate 62/262. (Specification at [0027] and [0042], and Figures 3B and 6B.) The fiber-cement panel 14 has a thickness of approximately 0.25-0.31625 inch, and the process of driving the punches into and through at least a portion of the thickness of the fiber-cement panel 14

comprises penetrating the punches 50/250 into the panel 14 to a depth of approximately 0.0625-0.1875 inch without passing the punches 50/250 completely through the panel 50/250 and thereby producing a ventilated fiber-cement soffit. (Specification at [0027], and Figures 3B and 6B.)

C. Independent Claim 25

Independent claim 25 is directed toward a method of fabricating a fiber-cement soffit 12 that includes providing a cured fiber-cement panel 14 comprising cement, cellulose material and a binder. (Specification at [0002], [0004]-[0006], [0018] and [0019], and Figures 2, 3A, 3B and 5-6B.) The method of claim 25 further includes placing the fiber-cement panel 14 between a punch assembly 40/240 and a support assembly 60/260. (Specification at [0027] and [0039], and Figures 3A and 6B.) The punch assembly 40/240 has a punch plate 42/242 and a plurality of punches 50/250 coupled to the punch plate 42/242, and the support assembly 60/260 has a support plate 62/262 with a plurality of holes 64/264. (Specification at [0021], [0022], [0024]-[0027], [0039] and [0040], and Figures 2, 3A, 3B and 5-6B.) The method further includes driving the punches 50/250 through at least a portion of the thickness of the fiber-cement panel 14 to form apertures 16 in the fiber-cement panel 14 by ejecting plugs 18 from the fiber-cement panel 14 through the holes 64/264 in the support plate 62/262. (Specification at [0027] and [0042], and Figures 3B and 6B.) The punches 50/250 are then withdrawn from the fiber-cement panel 14 without delaminating the fiber-cement panel 14 at the aperture 16. (Specification at [0027] and [0031].) The fiber-cement panel 14 has a thickness of approximately 0.25-0.31625 inch, and the punches 50/250 penetrate into the panel 14 to a depth of approximately 0.0625-0.1875 inch without passing the punches 50/250 completely through the panel 14 and thereby producing a ventilated fiber-cement soffit 12. (Specification at [0027], and Figures 3B and 6B.)

D. Independent Claim 31

Claim 31 is directed toward a method of fabricating a fiber-cement soffit 12 that includes providing a cured fiber-cement panel 14. (Specification at [0002], [0004]-[0006], [0018] and [0019], and Figures 2, 3A, 3B and 5-6B.) The method of claim 31 also includes engaging an

active drive assembly 174 with the cured fiber-cement panel. (Specification at [0035] and Figure 5.) The active drive assembly 174 has a first drive member contacting one surface of the fiber-cement panel 14 and a second drive member opposing the first drive member contacting an opposite surface of the fiber-cement panel 14. (Specification at [0035] and Figure 5.) The method further includes moving the first and second drive members such that the drive members feed the fiber-cement panel 14 between a punch assembly 40/240 and a support assembly 60/260. (Specification at [0035]-[0037], and Figure 5.) The punch assembly 40/240 has a punch plate 42/242 and a plurality of punches 50/250 projecting from the punch plate, and the support assembly has a support plate 62/262 with a plurality of holes 64/264. (Specification at [0021], [0022], [0024]-[0027] and [0031]-[0041], and Figures 2, 3A, 3B and 5-6B.) The method continues by forming a plurality of apertures 18 in the fiber-cement panel 14 by driving the punches 50/250 through only a portion of the thickness of the fiber-cement panel 14 without passing the punches 50/250 completely through the panel 14 and thereby producing a ventilated fiber-cement soffit 12. (Specification at [0027] and Figures 3B and 6B.)

E. Independent Claim 38

Claim 38 is directed toward a method of fabricating a fiber-cement soffit 12 that includes providing a cured fiber-cement panel 14 having a thickness of approximately 0.25-0.625 inch. (Specification at [0002], [0004]-[0006], [0018] and [0019], and Figures 2, 3A, 3B and 5-6B.) The method includes placing a fiber-cement panel 14 between a punch assembly 40/240 and a support assembly 60/260 so that a first side of the panel 14 faces the punch assembly 40/240 and a second side of the panel 14 faces the support assembly 60/260. (Specification at [0027] and [0041], and Figures 3B and 6B.) The punch assembly 40/240 has a punch plate 42/242 and a plurality of punches 50/250 coupled to the punch plate 42/242, and the support assembly 60/260 has a support plate 62/262 with a plurality of holes 64/264. (Specification at [0021], [0022], [0024]-[0027] and [0031]-[0041], and Figures 2, 3A, 3B and 5-6B.) The method further includes driving the punches 50/250 through only a portion of the thickness of the fiber-cement panel 14 to form a plurality of tapered openings 18 in the fiber-cement panel 14 and thereby producing a ventilated fiber-cement soffit 12. (Specification at [0027] and Figures 3B and 6B.)

F. Independent Claim 42

Claim 42 is directed toward a method of fabricating a fiber-cement soffit 12 that includes processing a cured fiber-cement panel 14. (Specification at [0002], [0004]-[0006], [0018] and [0019], and Figures 2, 3A, 3B and 5-6B.) The method of claim 42 further includes placing the cured fiber-cement panel 14 between a punch assembly 40/240 and a support assembly 60/260 so that a first side of the panel 14 faces the punch assembly 40/240 and a second side of the panel 14 faces the support assembly 60/260. (Specification at [0021], [0022], [0024]-[0027] and [0031]-[0041], and Figures 2, 3A, 3B and 5-6B.) The punch assembly 40/240 has a punch plate 42/242 and a plurality of punches 50/250 having a first cross-sectional dimension coupled to the punch plate 42/242. (Specification at [0021], [0026] and [0041], and Figures 3A, 3B, 6A and 6B.) The support assembly 60/260 has a support plate 62/262 with a plurality of holes 64/264 having a second cross-sectional dimension larger than the first cross-sectional dimension of the punches 50/250. (Specification at [0022], [0026] and [0041], and Figures 3A, 3B, 6A and 6B.) The method further includes driving the punches 50/250 through only a portion of the fiber-cement panel 14 to form a plurality of openings 18 in the fiber-cement panel 14 that have the first dimension of the punches 50/250 at the first side of the panel and the second dimension of the holes 64/264 at the second side of the panel 14, and thereby producing a ventilated fiber-cement soffit 12. (Specification at [0027] and Figures 3B and 6B.)

G. Independent Claim 49

Claim 49 is directed toward a method of fabricating a fiber-cement soffit 12 that comprises providing a cured fiber-cement panel 14 having a length, a width and a thickness of approximately 0.25-0.625 inch. (Specification at [0002], [0004]-[0006], [0018] and [0019], and Figures 2, 3A, 3B and 5-6B.) The method of claim 49 further includes placing the fiber-cement panel 14 between a punch assembly 40/240 and a support assembly 60/260 so that a first side of the panel 14 faces the punch assembly 40/240 and a second side of the panel 14 faces the support assembly 60/260. (Specification at [0021], [0022], [0024]-[0027] and [0031]-[0041], and Figures 2, 3A, 3B and 5-6B.) The punch assembly 40/240 has a punch plate 42/242 and a plurality of punches 50/250 having a first cross-sectional dimension coupled to the punch plate

42/242. (Specification at [0021], [0026] and [0041], and Figures 3A, 3B, 6A and 6B.) The support assembly 60/260 has a support plate 62/262 with a plurality of holes 64/264 having a second cross-sectional dimension larger than the first cross-sectional dimension of the punches 50/250. (Specification at [0022], [0026] and [0041], and Figures 3A, 3B, 6A and 6B.) The method further includes driving the punches 50/250 along a punch stroke through at least a portion of the thickness of the fiber-cement panel 14 to form a plurality of openings 18 in the fiber-cement panel 14 that have the first dimension of the punches 50/250 at the first side of the panel 14 and the second dimension of the holes 64/264 at the second side of the panel 14. (Specification at [0027] and Figures 3B and 6B.) The method further includes pressing a compressible biasing element 51 against the first side of the fiber-cement panel 14 as the punches 50/250 move along the punch stroke and thereby produce a ventilated fiber-cement soffit 12. (Specification at [0031] and Figure 3B.)

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. The Examiner's Rejections

The Examiner's rejections are as follows:

1. Claims 18-22, 24-39, 41-43 and 45-55 stand rejected under 35 U.S.C. § 112, first paragraph, on the grounds that there is allegedly no support for curing of the fiber-cement panels. Claim 31 also stands rejected under 35 U.S.C. § 112, first paragraph, for allegedly not having support for first and second active "drive members."

2. Claims 18 and 19 were rejected under 35 U.S.C. § 103 over the combination of U.S. Patent No. 3,962,941 issued to Kober ("Kober"), U.S. Patent No. 4,580,374 issued to Quinnell ("Quinnell"), and paragraphs [0002] and [0006] of the Specification ("Background Information").

3. Claims 20-22, 38, 39, 41-43 and 45-55 were rejected under 35 U.S.C. § 103 over the combination of Kober, Quinnell, the Background Information, and U.S. Patent No. 4,246,815 issued to Hugo ("Hugo").

4. Claims 24 and 25 were rejected under 35 U.S.C. § 103 over the combination of Kober, Quinnell, U.S. Patent No. 4,985,119 issued to Vinson et al. ("Vinson"), and the Background Information.

5. Claims 26-30 were rejected under 35 U.S.C. § 103 over the combination of Kober, Quinnell, Vinson, the Background Information and Hugo.

6. Claims 31 and 32 were rejected under 35 U.S.C. § 103 over the combination of Kober, Quinnell, the Background Information and U.S. Patent No. 3,914,079 issued to Kober ("Kober II").

7. Claims 33-37 were rejected under 35 U.S.C. § 103 over the combination of Kober, Quinnell, the Background Information, Kober II and Hugo.

B. Issues on Appeal

1. Whether providing a "cured" fiber-cement panel to be processed into a ventilated soffit in accordance with independent claims 19, 25, 31, 38, 42 and 49 is described in the Specification in such a way as to reasonably convey to a person skilled in the relevant art that the inventors had possession of the claimed invention at the time the application was filed.

2. Whether Kober teaches punching holes through filamentary mats that contain a liquid by driving punches through only a portion of the filamentary mats without passing the punches completely through the mats.

3. Whether punch penetration depth is a "result-effective variable" for forming holes through Kober's liquid containing mats when a person of ordinary skill in the art would understand that the punches must pass completely through such mats to form through-holes.

4. Whether it would have been obvious to a person of ordinary skill in the art to punch holes through a cured fiber-cement panel based on Kober's punch press with punches/dies that have substantially equal diameters and the teachings regarding the

inadequacy of using sheet metal punches/dies that also have substantially equal diameters for punching cured fiber-cement panels as described in paragraphs [0002] and [0006] of the Background Information.

5. Whether it would have been obvious to a person of ordinary skill in the art to use Kober's press with punches/dies that have substantially equal diameters to form ventilation slots in the cement-based boards taught by Quinnell when Quinnell instead teaches that solid soffit boards connected by thermoplastic ventilator panels should be used.

6. Whether it would have been obvious to a person of ordinary skill in the art to modify Kober's press to have the claimed punch-hole clearances for forming holes in the liquid containing mats taught by Kober.

7. Whether a person of ordinary skill in the art would modify Kober to press biasing elements against Kober's hydraulically bound filamentary mats.

VII. ARGUMENT

A. Legal Standard for Obviousness

Claims 18-22, 24-39, 41-43 and 45-55 on appeal stand rejected as being obvious under 35 U.S.C. § 103(a), which provides:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The Supreme Court has provided the following guidance in applying Section 103. In *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966), the Court stated:

> Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained;

> and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined.

More recently, the Supreme Court reaffirmed the holdings of Graham and clarified several aspects of the manner in which obviousness should be determined (KSR Int'l Co. v. Teleflex Inc., 127 S. Ct. 1727 (2007)). First, "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results," but "when the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be nonobvious" (id. at 1739-40). Second, "a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art"; rather, "it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does" (id. at 1741). The Court recognized that many significant advances will combine familiar elements: "inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known" (id).

Following the decision in *KSR Int'l*, the United States Patent and Trademark Office ("USPTO") issued a memorandum to all Examiners. The memorandum directs Examiners to continue to determine why a person of ordinary skill in the art would make the combination: "in formulating a rejection under 35 U.S.C. § 103(a) based upon a combination of prior art elements, it remains necessary to identify the reason why a person of ordinary skill in the art would have combined the prior art elements in the manner claimed" (USPTO Memorandum, *Supreme Court decision on KSR Int'l. Co. v. Teleflex, Inc.*, May 3, 2007, p. 2).

Furthermore, references cannot be combined where references teach away from their combination since it is improper to combine references where the references teach away from their combination. *In re Grasselli*, 713 F.2d 731, 743, 218 USPQ 769, 779 (Fed. Cir. 1983).

Under the Graham standards as clarified by KSR, Appellants' invention would not have been obvious, because the Examiner has not properly identified and interpreted prior art references, or a combination thereof, that disclose all the elements of claims 1-6, 8-12, 14-19

and 31-36. Therefore, the rejections of these claims under 35 U.S.C. § 103(a) should be reversed.

B. Cited References

1. U.S. Patent No. 3,962,921 (Kober)

Kober is directed toward an apparatus and method for perforating and trimming uncured filamentary mats composed of asbestos, cement and a hydraulic binder. Kober teaches punching holes through mats 3 that include liquid such that the mats 3 have not hardened (e.g., cured). More specifically, because Kober teaches that the moisture content of his mats is sufficiently high to require a vacuum pump to remove the liquid expressed from the mats during punching, Kober's mats have a liquid content which indicates that Kober's mats are not cured before punching. (Kober at 3:28-32.) Additional evidence that Kober's filamentary mats 3 are uncured includes Kober's teaching that the mats are subject to being extruded between the holes in the trays supporting the mats and the tubes with the die apertures. (Kober at 2:17-26 and 2:58-64.) Kober, moreover, teaches that the uncured filamentary mats must be supported by a moving tray to maintain the shape of the mats during processing. Kober's mats, therefore, are not hardened "boards" or "plates," but rather a person of ordinary skill in the art would understand that Kober's mats are an uncured material that is limp and deformable. (First Whitehead Deposition at ¶¶ 8 and 9.)

Kober teaches punching holes through the uncured mats 3 using a press 1 and support trays 7 that each hold an individual uncured mat 3. (Kober at 3:12-23.) The press 1 has an upper platen 9 including a plate 9b and a plurality of pins 10 having an outer diameter d carried on the plate 9b. (Kober at 3:24-27.) The press 1 further includes a lower platen 5 having an array of downwardly flaring passages 19 that each terminates at a hole 11 having an inner diameter substantially equal to the outer diameter d of the pins 10. (Kober at 3:28-35.) The upper platen 9 further includes trimming blades 25 with cutting edges that engage lead anvil strips 26 inset in the tray 7. (Kober at 3:65-68.) In operation, an unperforated and trimmed mat is placed on a tray 7, and then the tray 7 is positioned over the platen 5 in a raised position.

(Kober at 3:39-59.) The tray 7 is then lowered so that the nipples 18 of the dies enter the perforations or apertures 17 of the tray such that the upper ends 20 of the nipples 18 lie exactly at the upper planer surface of the tray 7. (Kober at 4:24-27 and 3:63-64.) The upper platen 9 descends so that the pins 10 punch perforations in the mat and drive plugs out of the bore 11 while the trimming blades 25 trim the edges of the mat. (Kober at 4:31-35.) With respect to the stroke length of the punch pins 10, Kober teaches forming holes in the uncured mats by relatively displacing the upper and lower press platens together for pressing the pins "through" the sheet of mat material and "into" the apertures of the dies. (Kober at claim 1.)

2. U.S. Patent No. 4,580,374 (Quinnell)

Quinnell is directed toward a soffit and fascia system. Quinnell teaches it is known to use a plurality of interlocking panels as soffits, and that it is sometimes preferred to use soffits of other rigid sheet materials, such as asbestos board. (Quinnell at 1:15-22.) With respect to ventilation, Quinnell teaches that one proposed soffit had ventilation slots formed in the cement-based soffit board itself. (Quinnell at 2:25-29.) However, Quinnell further teaches that producing ventilation slots through cement-based boards adds to the expense and is unsatisfactory in the context of manufacturing cement-based soffits. (Quinnell at 2:30-38.) Quinnell accordingly recognizes that there were difficulties in forming ventilation slots through cement-based boards, and instead Quinnell teaches that his invention overcomes such problems by using a solid soffit board without ventilation holes in combination with a separate, pre-formed plastic ventilator panel that is interposed between two lengths of the solid soffit boards. (Quinnell at 2:39-45.) Therefore, with respect to producing cement-based soffit boards with "ventilation slots formed in each soffit board," Quinnell's only specific teaching is that it is "unsatisfactory" to form ventilation slots through cement-based boards to produce soffit.

3. Background Information

Fiber-cement products are typically made from a composition having cement, cellulosic materials and a binder. The fiber-cement composition is pressed, cured and then cut into panels, shakes and planks to form finished siding products that are ready to be installed on a

structure. (Specification at [0002].) Soffits are installed under the eaves where the roof overhangs exterior walls on several buildings. (Specification at [0003].) Because fiber-cement building products do not suffer from the same drawbacks as wood, plastic or aluminum building products, many contractors and the producers of manufactured buildings wanted to install soffits made from fiber-cement at the time of the invention. (Specification at [0003].) However, producing soffit from cured fiber-cement panels or planks was difficult because cutting fiber-cement products with a circular saw or drilling fiber-cement panels with a drill produces a fine dust that is unpleasant and difficult to clean. (Specification at [0004] and [0005].) Drilling fiber-cement panels is also not generally feasible in large scale production because it is too time-consuming and the abrasiveness of the fiber-cement quickly wears down drill bits. (Specification at [0005].) James Hardie Building Products of Fontana, California, also experimented with punching individual holes through a fiber-cement panel using a sheet metal punch that had a very small clearance between the punch and the die. (Specification at [0006].) Punching apertures through fiber-cement panels with sheet metal punches, however, was not feasible because the punches often delaminated portions of the panel as the punches withdrew from the panel. (Specification at [0006].) Additionally, the sheet metal punches formed mushroom-shaped plugs with large openings that ripped out so much material from the backside of the panels that a typical 12-foot soffit may not have had sufficient structural integrity to be hung under the eaves of a structure. (Specification at [0006].)

C. Rejection of claims 18-22, 24-39, 41-43 and 45-55 under 35 U.S.C. § 112, first paragraph

Claims 18-22, 24-39, 41-43 and 45-55 stand rejected under 35 U.S.C. § 112, first paragraph, on the grounds that providing a "cured" fiber-cement panel for manipulation in accordance with the claimed methods allegedly was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors had possession of the claimed invention at the time the application was filed. In making this rejection, the Examiner states:

> Appellants' Specification discusses known methods of punching fiber-cement panels to include curing the panels (see Specification, Background section,

> [0002]) without providing support for curing of the panels manipulated by Appellants' invention. Thus, neither pre-punching nor post-punching curing is clarified with respect to Appellants' invention.

The Examiner accordingly admits that the fiber-cement panels manufactured by James Hardie Building Products described in paragraph [0005] of the Specification were cured and the problems described in paragraph [0006] of the Specification involved cured fiber-cement panels.

Based on the originally filed specification, one skilled in the art could reasonably conclude that the inventors had possession of "providing a cured fiber-cement panel" for processing in accordance with claims 19, 25, 31, 38, 42 and 49 at the time the application was filed. To satisfy the written description requirement, a patent specification must describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention. *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d at 1563, 19 USPQ 2d at 1116 (Fed. Cir. 1991); MPEP § 2163. An Appellants can show possession of the claimed invention by describing the claimed invention with all of its limitations using such descriptive means as words, structures, figures, diagrams, and formulas that fully set forth the claimed invention. *Lockwood v. American Airlines, Inc.*, 107 F.3d at 1565, 1572, 41 USPQ 2d 1961, 1966 (Fed. Cir. 1997). Newly added claim limitations must be supported in the specification through express, implicit or inherent disclosure, but there is no *in haec verba* requirement (i.e., the exact language is not required). Therefore, the fundamental factual inquiry is whether the text and figures of the present application conveys with reasonable clarity to those skilled in the art, albeit not requiring the exact language, that the inventors possessed the concept of "providing a cured fiber-cement panel" before punching at the time the application was filed.

Independent claims 19, 25, 31, 38, 42 and 49 comply with 35 U.S.C. § 112, first paragraph, because the Specification, including the figures, conveys with reasonable clarity to a person skilled in the art that Appellants possessed punching cured fiber-cement panels at the time of the application. First, Figure 3D and paragraph [0027] of the Specification show and describe that "the fiber-cement panel 14 fractures along approximately conical paths." A person skilled in the art would understand that fiber-cement must be cured so that it is sufficiently dry to "fracture" along a conical path when the punch depth is only approximately 20%-75% of the

thickness of the panel. (Second Whitehead Declaration at ¶ 7.) Second, Figure 5 and paragraphs [0035] and [0036] of the Specification further show and describe that before being punched the fiber-cement panel 14 is fed between rollers of a first active roller assembly 174 that indexes the fiber-cement panel 14 through the punch assembly 40. The fiber-cement panel 14 shown in Figure 5, moreover, supports itself in the region downstream of the first active roller assembly 174 but upstream from the punch assembly 40. The fiber-cement panel 14 must be sufficiently cured so that it can support itself in the cantilevered arrangement shown in Figure 5. (Second Whitehead Declaration at ¶ 8.) In contrast, the uncured mat taught by Kober could not support itself as shown in Figure 5, and for this reason Kober teaches using a support tray. (Second Whitehead Declaration at ¶ 8.) Thus, the Specification implicitly or inherently teaches that the fiber-cement panel 14 is in a cured state "pre-punching" since it supports itself between the active rollers 174 and the punch assembly 40. (Second Whitehead Declaration at ¶ 8.)

The Specification also expressly teaches that the inventors possessed punching cured fiber-cement panels at the time of the application. The Specification expressly states that James Hardie Building Products of Fontana, California produces the panel 14 without any holes. (Specification at ¶ [0019].) A person skilled in the art would understand that the fiber-cement panel described in paragraph [0019] of the Specification is the same as the fiber-cement panels manufactured by James Hardie Building Products described in paragraphs [0005] and [0006] that the Examiner acknowledges are cured. Based on the Examiner's acknowledgement that the fiber-cement panels described in the background section of the Specification are "cured" fiber-cement panels, and further based upon the originally filed specification at paragraphs [0019], [0027], [0035] and [0036], and Figures 3B and 5, the Specification conveys with reasonable clarity to a person skilled in the art that the Appellants were in possession of "providing a cured fiber-cement panel" for punching as of the filing date of the application. Therefore, the Appellants respectfully request withdrawal of the rejection of claims 18-22, 24-39, 41-43 and 45-55 under 35 U.S.C. § 112, first paragraph.

Claim 31 also complies with 35 U.S.C. § 112, first paragraph, because the Specification, including the figures, conveys with reasonable clarity to a person skilled in the art that Appellants possessed "engaging an active drive assembly with the fiber-cement panel" at the

time of the application. Paragraphs [0035]-[0037] and Figure 5 of the Specification disclose that the punch press includes a first active roller assembly that includes drive rollers which engage the top and bottom surfaces of the fiber-cement panel. The first active roller assembly rotates at a relatively low rotational velocity to draw the panel towards the punch assembly, and then the first active roller assembly can rotate at a relatively high velocity to position the panel between the punch assembly and the support assembly as shown in Figure 5. The active rollers are accordingly first and second drive members that constitute a drive assembly. Other types of active drive members can include belts that engage the top and bottom surfaces of the fiber-cement panel. A person skilled in the art would readily recognize the active rollers described in paragraphs [0035]-[0037] of the Specification as active drive members. Therefore, the Specification conveys with reasonable clarity to a person of ordinary skill in the art that the Appellants possessed engaging and driving the fiber-cement panel through the punch assembly using active drive members.

D. Rejection of claims 18 and 19 under 35 U.S.C. § 103(a) over Kober, Quinnell and the Background Information

Claims 18 and 19 stand rejected under 35 U.S.C. § 103 over the combination of Kober, Quinnell and the Background Information. The rejection of claim 19 is improper because several of the Examiner's assertions supporting this rejection are incorrect. More specifically, Kober not only fails to teach driving the punches through only a portion of the mat without passing the punches completely through the mat, but rather Kober teaches and inherently requires that the punches pass completely through Kober's uncured mat such that this parameter cannot be a "result-effective variable" in Kober. Additionally, in view of Kober's teachings regarding the punch/die clearance for forming holes in Kober's uncured mat and the teachings in the Background Information regarding the problems of punching holes in cured fiber-cement panels using sheet metal punches, it would not be obvious to a person of ordinary skill in the art to use Kober's press to punch holes through cured fiber-cement panels. Additionally, the Examiner incorrectly asserts that Quinnell teaches the desirability of soffit that includes a plurality of ventilation slots formed in a cement-based board, but Quinnell in fact teaches that it is not economical or desirable to form slots in cement-based boards. As a result,

the combination of Kober, Quinnell and the Background Information fails to disclose or suggest several features of claim 19.

1. The Combination of Kober, Quinnell and the Background Information Fails to Teach, *inter alia*, Driving Punches Through Only a Portion of a Thickness of the Cured Fiber-Cement Panel Such That the Punches Penetrate to a Depth of Approximately 0.0625-0.1875 Inch Without Passing Completely Through the Thickness of the Panel

Claim 19 recites providing a cured fiber-cement panel having a thickness of approximately 0.25-0.31625 inch and driving the punches into the panel to a depth of approximately 0.0625-0.1875 inch without passing the punches completely through the thickness of the panel. Kober fails to disclose or suggest processing cured fiber-cement panels, and Kober also fails to disclose or suggest forming holes without passing the punches completely through the thickness of the material. Kober teaches punching holes in an uncured filamentary mat instead of a cured fiber-cement panel. (First Whitehead Declaration at ¶¶ 8 and 9.) A person skilled in the art would understand that the punches must pass completely through Kober's uncured filamentary mats because passing punches through only a portion of the thickness of Kober's mats would not form holes completely through the uncured filamentary material. (First Whitehead Declaration at ¶ 10.) More specifically, because of the liquid content of Kober's mats, the fiber material would be compressed and partially extruded into the dies (i.e., the tubes 18) without being fully ejected if Kober's punches did not pass completely through the mat material. (First Whitehead Declaration at ¶ 10.) Kober's filamentary mats also compress under the pressure of the punches, and thus the waste material would expand as it enters the flared passages and clog the flared passages if the punches did not pass completely through Kober's filamentary mats. (First Whitehead Declaration at ¶ 10.) Moreover, Kober's only specific teaching regarding punch penetration depth is the last element of claim 1 which requires pressing the punch pins through the mats, through the holes in the trays that support the mats, and into the apertures of the dies. (First Whitehead Declaration at ¶ 10.) Kober accordingly teaches and inherently requires that the punches pass completely through his uncured mats. Quinnell and the Background Information also fail to teach, *inter alia*, punching holes through cured fiber-cement panels by passing the punches through only a portion of the panel thickness.

In contrast to the teachings of Kober and the inherent aspects of punching holes through an uncured filamentary mat as understood by a person of ordinary skill in the art, the Examiner attempts to overcome these shortcomings of the cited references by asserting that Kober indirectly teaches driving the punches through only a portion of the thickness of the uncured mats without passing the punches completely through the mats. To support this proposition, the Examiner states "[A]s illustrated in the figures, Kober further teaches that the punch means 8 are slightly shorter, but definitely not longer, in length than the trimming blades 25." The Examiner then concludes "[I]f the travel of the trimming blades 25 and the upper platen 9 stops when trimming blades 25 engage against [the] lead anvil strips 26 as taught and the punch means 8 are slightly shorter in length than the trimming blades 25, the punch means 8 in the process of Kober would obviously pass through a portion of the fiber plate 3 and would obviously be prevented from passing completely through the fiber plate 3 as claimed." The Examiner's reading of Kober and his conclusions are incorrect and based upon two faulty assumptions. First, lead is a relatively soft material and Kober's thin trimming blades 25 would form depressions in Kober's lead anvil strips 26 such that the bottom of Kober's punch pins 10 would pass completely through Kober's uncured mats and into holes 11 of Kober's dies. (First Whitehead Declaration at ¶ 11.) The travel of the trimming blades 25, therefore, does not likely stop at exactly the plane of the top surface of the tray 7 as assumed by the Examiner. Second, Kober's trimming blades 25 and punches 10 are shown in line drawings without any dimensions, and the thickness of the lines of the trimming blade greatly affect the apparent length of Kober's trimming blades because of the angle and blade thickness. Such shading and line thickness appears to artificially enhance the length of Kober's trimming blade, which is further noted in Figure 3 by the little knob-like discrepancy at the end of the trimming blade 25. Kober's punch pins 10 are accordingly not definitively disclosed as being shorter than the trimming blades 25. Claim 1 of Kober, moreover, expressly refutes the Examiner's assertions by requiring that the punch pins be pressed into the apertures of the dies. Therefore, the teachings of Kober and the evidence of record establish that Kober does not indirectly teach driving punches through only a portion of Kober's uncured filamentary mat without passing the punches completely through the mat.

2. Kober Cannot Teach That the Punch Penetration Depth is a "Result-Effective Variable" Because a Person of Ordinary Skill in the Art Would Understand that Kober's Process of Forming Holes in a Filamentary Mat Requires the Punches to Pass Completely Through Such Mats

The rejection of claim 19 is further incorrect because, in contrast to the Examiner's assertion, Kober cannot recognize punch penetration depth as a result-effective variable. In rejecting claim 19, the Examiner asserts Kober recognizes punch penetration depth is a result-effective variable and the Examiner then concludes that a person of ordinary skill in the art would have obviously determined the optimum penetration depth through routine experimentation. To be recognized as result-effective variable, the particular parameter must be a variable that achieves a recognized result before the determination of the optimum or workable ranges of the variable can be characterized as routine experimentation. MPEP § 2144.05(ii)(B). As set forth above and in the First Whitehead Declaration at ¶¶ 10 and 11, Kober's punch pins 10 must pass completely through Kober's uncured mat 3 to form holes through Kober's mats. Kober's only definitive teaching regarding punch depth, moreover, teaches that the punch pins are pressed through the mat and into the die apertures. (Kober at claim 1, emphasis added.) The punch penetration depth cannot be a "result-effective variable" in Kober because the result of forming holes through Kober's uncured mats to produce a pegboard is not achieved unless Kober's punches are pressed completely through the mats and into the die apertures. As such, punch penetration depth cannot be a variable subject to a rejection based on optimizing workable ranges through routine experimentation.

3. A Person of Ordinary Skill in the Art Would Not Use Kober's Press for Punching Holes Through a Cured Fiber-Cement Panel When Kober Teaches Punches and Dies With Substantially Equal Diameters and the Background Information Teaches Very Small Punch/Die Clearances Did Not Successfully Punch Holes Through Cured Fiber-Cement Panels

Claim 19 is further patentable over the combination of Kober, Quinnell and the Background Information because the Examiner incorrectly concluded that a person of ordinary skill in the art would use Kober's press to punch holes through a cured fiber-cement panel based upon the teachings of Kober and paragraphs [0002] and [0006] of the Background

Information. The portion of the Background Information cited by the Examiner teaches (a) James Hardie Building Products of Fontana, California attempted to form holes in cured fiber-cement panels by cured fiber-cement panels with a sheet metal punch, and (b) sheet metal punches have very small clearances between the punch and the die. The Background Information further teaches that the sheet metal punches often stick to the fiber-cement panel and may thus delaminate portions of the panel as they are withdrawn. The Background Information also teaches that punching apertures through a cured fiber-cement panel with sheet metal punches may rip out so much material that a typical 12-foot soffit may not have sufficient structural integrity to be hung under the eaves of a structure. The portion of the Background Information cited by the Examiner accordingly teaches that punching cured fiber-cement panels with presses having very small punch/die clearances is not viable. Kober does nothing to overcome the shortcomings of the problems identified in the Background Information because Kober expressly discloses dies having holes with an inner diameter "substantially equal to the outer diameter" of the punch pins. (Kober at 3:32-35.) The Examiner's assertion that a person of ordinary skill in the art would use Kober's press to punch holes through cured fiber-cement panels is incorrect because as Kober's very small punch/die clearance would have the same problems associated with the sheet metal punches set forth in paragraph [0006] of the Background Information.

4. A Person of Ordinary Skill in the Art Would Not Use Kober's Press to Punch Holes In the Asbestos-Cement Boards taught by Quinnell to Form Soffit Boards Because Quinnell Teaches that Producing Ventilation Slots in Cement-Based Boards is not Desirable

Claim 19 is further patentable over the combination of Kober, Quinnell and the Background Information because a person skilled in the art would not punch vent holes in Quinnell's asbestos-cement boards using the device and process taught in Kober. First, Kober's press for punching holes in uncured filamentary mats is not suitable for punching vent holes in cured cement-based panels for the reasons explained above. More specifically, a person skilled in the art would understand that Kober's very small punch/die clearance would result in the same problems with Quinnell's asbestos-cement boards as set forth in paragraph [0006] of the Background Information. Second, Quinnell teaches away from forming holes

through cement-base boards to produce ventilated soffit. Although column 2, lines 25-38, of Quinnell state that one "proposal" involves the use of ventilation slots through a soffit board, this portion of Quinnell in fact teaches that producing ventilation slots through cement-based boards adds to the expense and is not desirable for low-cost cement-based soffits. Quinnell instead teaches that there is a need for a ventilated soffit system that comprises a pre-formed ventilator panel made from molded thermoplastics interposed between two lengths of unventilated cement-based boards. (Quinnell at 2:39-45 and 4:7-46, and Figures 4 and 5.) When Kober and Quinnell are taken together, therefore, a person of ordinary skill in the art would not punch vent holes in the asbestos-cement boards taught in Quinnell using Kober's press to produce ventilated asbestos-cement soffits. Claim 19 is accordingly further patentable over the combination of Kober, Quinnell and the Background Information.

E. Rejection of claims 20-22, 38, 39, 41-43 and 45-55 under 35 U.S.C. § 103(a) over Kober, Quinnell, the Background Information and Hugo

Claims 20-22, 38, 39, 41-43 and 45-55 were rejected under 35 U.S.C. § 103 over the combination of Kober, Quinnell, the Background Information and Hugo. Claims 20-22 depend from independent claim 19. Claim 38, 42 and 49 are independent claims subject to this rejection, and claims 38 and 42 differ from claim 49. The claims subject to this rejection are accordingly grouped into patentably distinct groups as set forth below.

1. Claims 20-22

Claims 20-22 were rejected over this combination of references based on the Examiner's characterization and understanding of Kober, Quinnell and the Background Information as applied to claim 19. The Examiner admits that Kober does not specifically teach the claimed diameters of the punches and holes, but the Examiner asserts "Kober obviously recognizes that the arrangement of the pins 10 and the tubes 18 is a result-effect variable." As explained in more detail below, the Examiner is incorrect because Kober expressly teaches that the punches and die holes have equal or substantially equal diameters and the claimed punch-hole clearances would not work for Kober's uncured filamentary mats.

Claims 20-22 include the features of claim 19 and further include specific clearances between the punches and holes in the support plate. Claim 20 claims a radial punch-hole clearance of approximately 0.04-0.07 inch. Claim 21 claims a radial punch-hole clearance of approximately 4%-30% of the second diameter of the die holes, and claim 22 claims a radial punch-hole clearance of approximately 4%-40% of the thickness of the cured fiber-cement panel.

Claims 20-22 are patentable over the cited combination of references because modifying Kober's press to have the claimed radial punch-hole clearances would destroy or at least impair the ability of Kober's press to punch clean holes through his uncured mats. First, Kober expressly teaches that the diameters of the punches and the diameters of the die-holes are equal or substantially equal. (Kober at column 2, lines 2-5, and column 3, lines 32-35.) Second, if Kober used the claimed radial punch-hole clearances, then Kober's punches would likely pull fibers from Kober's filamentary mats into the claimed clearance gaps between the punches and the bores. (First Whitehead Declaration at ¶ 11.) Such "fiber pull" into the bores of the dies would result in jagged or fuzzy edges around the holes at the backside of the mats. (First Whitehead Declaration at ¶ 11.) The pulled fiber may also curl or spring back into the holes formed in the mat as it is lifted from the lower platen. (First Whitehead Declaration at ¶ 11.) A person skilled in the art, therefore, would understand that modifying Kober's press to have the claimed punch/die clearance would destroy Kober's purpose of forming a pegboard. It follows that the radial clearance between the punches and the dies is not a result-effective variable because the result of providing a clean hole is not achieved using the claimed radial clearances between the punches and the dies. Claims 20-22 and 33-35 are accordingly patentable over the cited combination of references for at least this feature.

Claims 20-22 are further patentable over the cited combination of references because these claims include the features of claim 19 discussed above with respect to the Section 103 rejection based on Kober, Quinnell and the Background Information, and Hugo fails to overcome the shortcomings of the other cited references. Therefore, claims 20-22 are further patentable over the cited combination of references.

2. Claims 38, 39, 41-43 and 45-48

Independent claims 38 and 42 include providing a cured fiber-cement panel and driving the punches through only a portion of the thickness of the fiber-cement panel to form a plurality of openings in the fiber-cement panel. This feature of claims 38 and 42 is similar to claim 19 but without a specific punch penetration depth. Claims 38 and 42 are accordingly patentable over the combination of Kober, Quinnell, and the Background Information because none of these references teaches driving the punches through only a portion of the panel thickness. The additional references cited in the rejection of claims 38 and 42 do not overcome these shortcomings. Therefore, claims 38 and 42 are patentable over the cited combination of references.

Claims 39, 41, 42 and 45-48 depend from either independent claim 38 or 42. As a result, claims 38, 39, 41, 42 and 45-48 are patentable over the combination of Kober, Quinnell, Hugo and the Background Information for at least the reasons cited above with respect to the rejection of claim 19.

3. Claims 49-55

Claim 49 is patentable over the combination of Kober, Quinnell, Hugo and the Background Information because modifying Kober's press to include the annular inserts taught by Hugo would render Kober's press unsuitable for punching holes through Kober's uncured mats. More specifically, Kober's uncured mats would be marred if biasing elements were pressed against the upper surface of the mats during the punching process. (First Whitehead Declaration at ¶ 13.) PacTool International, the exclusive licensee of the present application, discovered that biasing elements with high durometers marred the surface of even cured fiber-cement panels. (First Whitehead Declaration at ¶ 13.) PacTool accordingly developed biasing elements with compressibility properties that would not mar the cured fiber-cement panels. (First Whitehead Declaration at ¶ 13.) Kober's filamentary mats 3, on the other hand, are significantly more deformable than the cured fiber-cement panels recited in claim 49, and thus the surface of Kober's filamentary mats would deform under the presence of biasing elements. For example, biasing elements would likely leave ring-shaped depressions around the holes.

This is particularly the case when using higher durometer biasing elements. A person skilled in the art, therefore, would not modify Kober's press to use the annular inserts taught by Hugo because doing so would render Kober's press unsuitable for making pegboard from uncured mats of material. Claim 49 is accordingly patentable over the combination of Kober, Quinnell, Hugo and the Background Information.

Claim 49 is further patentable over the combination of Kober, Quinnell, Hugo and the Background Information because the Examiner's rationale for this rejection is incorrect. More specifically, the Examiner asserts that one of ordinary skill would have been motivated to surround the pins of Kober with the annular inserts taught by Hugo to provide a punching arrangement "having a substantially reduced breakage rate in the punching of workpieces." Hugo teaches that thin punches break when punching thick metal workpieces. Although this may be true for punching the thick metal workpieces taught by Hugo, it does not follow for Kober's application. More specifically, Kober's punches are not likely to break as they pass through Kober's uncured filamentary mats because the downforce to punch holes through uncured filamentary mats is far less than that for thick metal workpieces. Claim 49, therefore, is further patentable over the combination of Kober, Quinnell, Hugo and the Background Information.

Claims 50-55 depend from claim 49 and are thus patentable over the combination of Kober, Quinnell, Hugo and the Background Information for the reasons explained above with respect to claim 49, and for the additional features of these claims. Claims 52-55, for example, include radial punch-hole clearances that are patentable over these references for the reasons explained above with respect to claims 20-22.

F. Rejection of claims 24 and 25 under 35 U.S.C. § 103(a) over Kober, Quinnell, Vinson and the Background Information

Claims 24 and 25 were rejected under 35 U.S.C. § 103 over the combination of Kober, Quinnell, Vinson and the Background Information. Claim 25 includes several features that are similar to claim 19. Claim 25 further includes providing a cured fiber-cement panel comprising cement, cellulose material and a binder, and claim 25 also includes withdrawing the punches

from the fiber-cement panel without delaminating the fiber-cement panel. Like claim 19, claim 25 includes penetrating the punches into the panel without passing the punches completely through the panel. Claim 25 is accordingly patentable over the combination of Kober, Quinnell, Vinson and the Background Information for at least the reasons explained above with respect to claim 19.

G. Rejection of claims 26-30 under 35 U.S.C. § 103(a) over Kober, Quinnell, Vinson, the Background Information and Hugo

Claims 26-30 were rejected over the combination of Kober, Quinnell, Vinson, the Background Information and Hugo. Claims 26-30 are patentable over this combination of references because these claims depend from claim 25, which is patentable over the combination of Kober, Quinnell, Vinson and the Background Information for the reasons explained above regarding claim 19. Claims 26-28 are further patentable over this combination of references for the reasons explained above with respect to claims 20-22 regarding the punch/die clearances. Claims 29 and 30 are further patentable over this combination of references for the reasons explained above with respect to claim 49. Therefore, claims 26-30 are patentable over the cited combination of references, and this rejection should be withdrawn.

H. Rejection of claims 31 and 32 under 35 U.S.C. § 103(a) over Kober, Quinnell, the Background Information and Kober II

Claim 31 is patentable over the combination of Kober, Quinnell, the Background Information and Kober II because this combination of references fails to disclose or suggest several features of this claim. For example, this combination of references fails to disclose or suggest forming a plurality of apertures in a cured fiber-cement panel by driving punches through only a portion of the thickness of the fiber-cement panel without passing the punches completely through the panel. For the reasons explained above with respect to claim 19, Kober fails to disclose or suggest driving the punches through only a portion of the thickness of Kober's uncured filamentary mat such that the punches do not pass completely through Kober's uncured mats. (First Whitehead Declaration at ¶ 10.) Claim 31 is accordingly patentable over

this combination of references for reasons that are analogous to those explained above with respect to claim 19.

Claim 31 is also patentable over the combination of Kober and Quinnell under Section 103 because the Examiner's primary rationale supporting this rejection is without merit. In rejecting claim 31, the Examiner "stipulates" that Kober indirectly teaches the concept of driving the punches through only a portion of the thickness of the fiber-cement panel without passing the punches completely through the panel. Appellants do not concede or agree to such a stipulation because the Examiner is factually incorrect for the reasons explained above with respect to claim 19.

Claim 31 is also patentable over this combination of references because a person of ordinary skill in the art would not punch vent holes in the asbestos cement boards taught in Quinnell using the device taught in Kober. As explained above with reference to claim 19, Kober's device would not be suitable for punching vent holes in cured cement-based panels, and Quinnell teaches that it is "unsatisfactory" in the context of low-cost systems to form vent slots directly in cement-based boards. Claim 31, therefore, is further patentable over this combination of references.

I. Rejection of claims 33-37 under 35 U.S.C. § 103(a) over Kober, Quinnell, the Background Information, Kober II and Hugo

Claims 33-37 are patentable over the combination of Kober, Quinnell, the Background Information, Kober II and Hugo because these claims depend from independent claim 31 and include additional features. As set forth above, claim 31 is patentable over the combination of Kober, Quinnell, the Background Information and Kober II because none of these references discloses or suggests forming a plurality of apertures in a cured fiber-cement panel by driving punches through only a portion of the thickness of the fiber-cement panel without passing the punches completely through the panel. Hugo does not overcome this shortcoming of the other references, and thus claims 33-37 are patentable over the cited combination of references for at least the reasons set forth above with respect to claim 31. Claims 33-35 all include specific

punch/die clearances, and thus these claims are further patentable over the cited combination of references for the reasons explained above with respect to claims 20-22. Claim 37 is also further patentable over these references for reasons that are analogous to those explained above with respect to claim 49.

VIII. CLAIMS

A copy of the claims involved in the present appeal is attached hereto as Appendix A. As indicated above, the claims in Appendix A include the amendments filed by Appellants on January 28, 2008, and do not include the amendment(s) filed on October 29, 2008.

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APPENDIX A – CLAIMS

Claims Involved in the Appeal of Application Serial No. 10/039,064

1-17. (Cancelled)

18. (Previously Presented) The method of claim 19 wherein driving the punches comprises penetrating the punches into the fiber-cement panel along the full length of the fiber-cement panel in one stroke of the punches.

19. (Previously Presented) A method of fabricating a fiber-cement soffit, comprising:

providing a cured fiber-cement panel having a length, a width and a thickness;

placing the fiber-cement panel between a punch assembly and a support assembly, the punch assembly having a punch plate and a plurality of punches coupled to the punch plate, and the support assembly having a support plate with a plurality of holes;

driving the punches into and through at least a portion of the thickness of the fiber-cement panel to form a plurality of apertures in the fiber-cement panel by ejecting plugs from the fiber-cement panel through the holes in the support plate; and

wherein the fiber-cement panel has a thickness of approximately 0.25-0.31625 inch, and wherein driving the punches comprises penetrating the punches into the panel to a depth of approximately 0.0625-0.1875 inch without passing the punches completely through the panel and thereby producing a ventilated fiber-cement soffit.

20. (Previously Presented) The method of claim 19 wherein:

the punch assembly includes a flat punch plate and the plurality of punches project from the punch plate, the punches being spaced apart from one another by

approximately 0.5-1.0 inch, and the punches having a first end attached to the punch plate, a second end opposite the first end with a contact face, and a first diameter of approximately 0.11-0.25 inch;

the support assembly includes a flat support plate and the plurality of holes extend through the support plate, each hole being aligned with a corresponding punch projecting from the punch plate, and the holes having a second diameter of approximately 0.18-0.39 inch to provide a radial punch/hole clearance between the punches and holes of approximately 0.04-0.07 inch; and

driving the punches comprises moving the punches toward the holes and into the fiber-cement panel until the punches eject the plugs from the panel.

21. (Previously Presented) The method of claim 19 wherein:

the punch assembly includes a flat punch plate and the plurality of punches project from the punch plate, the punches being spaced apart from one another by approximately 0.5-1.0 inch, and the punches having a first end attached to the punch plate, a second end opposite the first end with a contact face, and a first diameter of approximately 0.11-0.25 inch;

the support assembly includes a flat support plate and the plurality of holes extend through the support plate, each hole being aligned with a corresponding punch projecting from the punch plate, and the holes having a second diameter of approximately 0.18-0.39 inch to provide a radial punch/hole clearance between the punches and holes of approximately 4%-30% of the second diameter of the holes; and;

driving the punches comprises moving the punches toward the holes and into the fiber-cement panel until the punches eject the plugs from the panel.

22. (Previously Presented) The method of claim 19 wherein:

the punch assembly includes a flat punch plate and the plurality of punches project from the punch plate, the punches being spaced apart from one another by approximately 0.5-1.0 inch, and the punches having a first end attached to the

punch plate, a second end opposite the first end with a contact face, and a first diameter of approximately 0.11-0.25 inch;

the support assembly includes a flat support plate and the plurality of holes extend through the support plate, each hole being aligned with a corresponding punch projecting from the punch plate, and the holes having a second diameter of approximately 0.18-0.39 inch to provide a radial punch/hole clearance between the punches and holes of approximately 4%-40% of a thickness of the fiber-cement panel; and

driving the punches comprises moving the punches toward the holes and into the fiber-cement panel until the punches eject the plugs from the panel.

23. (Cancelled)

24. (Previously Presented) The method of claim 25 wherein the fiber-cement panel has a length, a width and a thickness, and wherein driving the punches comprises penetrating the punches into the fiber-cement panel along the length of the fiber-cement panel in one punch stroke.

25. (Previously Presented) A method of fabricating a fiber-cement soffit, comprising:

providing a cured fiber-cement panel having a thickness, and the fiber-cement panel comprising cement, cellulose material, and a binder;

placing the fiber-cement panel between a punch assembly and a support assembly, the punch assembly having a punch plate and a plurality of punches coupled to the punch plate, and the support assembly having a support plate with a plurality of holes;

driving the punches through at least a portion of the thickness of the fiber-cement panel to form apertures in the fiber-cement panel by ejecting plugs from the fiber-cement panel through the holes in the support plate;

withdrawing the punches from the fiber-cement panel without delaminating the fiber-cement panel at the apertures; and

wherein the fiber-cement panel has a thickness of approximately 0.25-0.31625 inch, and wherein driving the punches comprises penetrating the punches into the panel to a depth of approximately 0.0625-0.1875 inch without passing the punches completely through the panel and thereby producing a ventilated fiber-cement soffit.

26. (Previously Presented) The method of claim 25 wherein:

the punch assembly includes a flat punch plate and the plurality of punches project from the punch plate, the punches being spaced apart from one another by approximately 0.5-1.0 inch, and the punches having a first end attached to the punch plate, a second end opposite the first end with a contact face, and a first diameter of approximately 0.11-0.25 inch;

the support assembly includes a flat support plate and the plurality of holes extend through the support plate, each hole being aligned with a corresponding punch projecting from the punch plate, and the holes having a second diameter of approximately 0.18-0.39 inch to provide a radial punch/hole clearance between the punches and holes of approximately 0.04-0.07 inch; and

driving the punches comprises moving the punches toward the holes and into the fiber-cement panel until the punches eject the plugs from the panel.

27. (Previously Presented) The method of claim 25 wherein:

the punch assembly includes a flat punch plate and the plurality of punches project from the punch plate, the punches being spaced apart from one another by approximately 0.5-1.0 inch, and the punches having a first end attached to the punch plate, a second end opposite the first end with a contact face, and a first diameter of approximately 0.11-0.25 inch;

the support assembly includes a flat support plate and the plurality of holes extend through the support plate, each hole being aligned with a corresponding punch

projecting from the punch plate, and the holes having a second diameter of approximately 0.18-0.39 inch to provide a radial punch/hole clearance between the punches and holes of approximately 4%-30% of the second diameter of the holes; and

driving the punches comprises moving the punches toward the holes and in to the fiber-cement panel until the punches eject the plugs from the panel.

28. (Previously Presented) The method of claim 25 wherein:

the punch assembly includes a flat punch plate and the plurality of punches project from the punch plate, the punches being spaced apart from one another by approximately 0.5-1.0 inch, and the punches having a first end attached to the punch plate, a second end opposite the first end with a contact face, and a first diameter of approximately 0.11-0.25 inch;

the support assembly includes a flat support plate and the plurality of holes extend through the support plate, each hole being aligned with a corresponding punch projecting from the punch plate, and the holes having a second diameter of approximately 0.18-0.39 inch to provide a radial punch/hole clearance between the punches and holes of approximately 4%-40% of a thickness of the fiber-cement panel; and

driving the punches comprises moving the punches toward the holes and into the fiber-cement panel until the punches eject the plugs from the panel.

29. (Previously Presented) The method of claim 25 wherein withdrawing the punches from the fiber-cement panel comprises pressing resilient biasing members against the fiber-cement panel adjacent to at least a subset of the plurality of punches when the punches penetrate into fiber-cement panel.

30. (Previously Presented) The method of claim 25, further comprising:

providing a plurality of biasing elements coupled to the punch assembly, the biasing elements being compressible, resilient members projecting from the punch plate adjacent to a punch; and

withdrawing the punches from the fiber-cement panel by pressing the biasing elements against the fiber-cement panel proximate to at least a subset of the punches as the punches penetrate the fiber-cement panel.

31. (Previously Presented) A method of fabricating a fiber-cement soffit, comprising:

providing a cured fiber-cement panel;

engaging an active drive assembly with the fiber-cement panel, wherein the active drive assembly has a first drive member contacting one surface of the fiber-cement panel and a second drive member opposing the first drive member contacting an opposite surface of the fiber-cement panel;

moving the first and second drive members such that the drive members feed the fiber-cement panel between a punch assembly and a support assembly, the punch assembly having a punch plate and a plurality of punches projecting from the punch plate, and the support assembly having a support plate with a plurality of holes; and

forming a plurality of apertures in the fiber-cement panel by driving the punches through only a portion of the thickness of the fiber-cement panel without passing the punches completely through the panel and thereby producing a ventilated fiber-cement soffit.

32. (Previously Presented) The method of claim 31 wherein the fiber-cement panel has a thickness of approximately 0.25-0.31625 inch, and wherein driving the punches comprises penetrating the punches into the panel to a depth of approximately 0.0625-0.1875 inch without passing the punches completely through the panel.

33. (Previously Presented) The method of claim 31 wherein:

the punch assembly includes a flat punch plate and the plurality of punches project from the punch plate, the punches being spaced apart from one another by approximately 0.5-1.0 inch, and the punches having a first end attached to the punch plate, a second end opposite the first end with a contact face, and a first diameter of approximately 0.11-0.25 inch;

the support assembly includes a flat support plate and the plurality of holes extend through the support plate, each hole being aligned with a corresponding punch projecting from the punch plate, and the holes having a second diameter of approximately 0.18-0.39 inch to provide a radial punch/hole clearance between the punches and holes of approximately 0.04-0.07 inch; and

driving the punches comprises moving the punches toward the holes and into the fiber-cement panel until the punches eject the plugs from the panel.

34. (Previously Presented) The method of claim 31 wherein:

the punch assembly includes a flat punch plate and the plurality of punches project from the punch plate, the punches being spaced apart from one another by approximately 0.5-1.0 inch, and the punches having a first end attached to the punch plate, a second end opposite the first end with a contact face, and a first diameter of approximately 0.11-0.25 inch;

the support assembly includes a flat support plate and the plurality of holes extend through the support plate, each hole being aligned with a corresponding punch projecting from the punch plate, and the holes having a second diameter of approximately 0.18-0.39 inch to provide a radial punch/hole clearance between the punches and holes of approximately 4%-30% of the second diameter of the holes; and

driving the punches comprises moving the punches toward the holes and into the fiber-cement panel until the punches eject the plugs from the panel.

35. (Previously Presented) The method of claim 31 wherein:

the punch assembly includes a flat punch plate and the plurality of punches project from the punch plate, the punches being spaced apart from one another by approximately 0.5-1.0 inch, and the punches having a first end attached to the punch plate, a second end opposite the first end with a contact face, and a first diameter of approximately 0.11-0.25 inch;

the support assembly includes a flat support plate and the plurality of holes extend through the support plate, each hole being aligned with a corresponding punch projecting from the punch plate, and the holes having a second diameter of approximately 0.18-0.39 inch to provide a radial punch/hole clearance between the punches and holes of approximately 4%-40% of a thickness of the fiber-cement panel; and

driving the punches comprises moving the punches toward the holes and into the fiber-cement panel until the punches eject the plugs from the panel.

36. (Original) The method of claim 31 wherein withdrawing the punches from the fiber-cement panel comprises pressing resilient biasing members against the fiber-cement panel adjacent to at least a subset of the plurality of punches when the punches penetrate into fiber-cement panel.

37. (Original) The method of claim 31, further comprising:

providing a plurality of biasing elements coupled to the punch assembly, the biasing elements being compressible, resilient members projecting from the punch plate adjacent to a punch; and

withdrawing the punches from the fiber-cement panel by pressing the biasing elements against the fiber-cement panel proximate to at least a subset of the punches as the punches penetrate the fiber-cement panel.

38. (Previously Presented) A method of fabricating a fiber-cement soffit, comprising:

providing a cured fiber-cement panel having a thickness of approximately 0.25-0.625 inch;

placing a fiber-cement panel between a punch assembly and a support assembly so that a first side of the panel faces the punch assembly and a second side of the panel faces the support assembly, the punch assembly having a punch plate and a plurality of punches coupled to the punch plate, and the support assembly having a support plate with a plurality of holes; and

driving the punches through only a portion of the thickness of the fiber-cement panel to form a plurality of tapered openings in the fiber-cement panel and thereby producing a ventilated fiber-cement soffit.

39. (Previously Presented) The method of claim 38 wherein driving the punches comprises passing the punches along a punch stroke path to an intermediate depth of the fiber-cement panel without passing the punches completely through the panel and ejecting plugs from the panel in the direction of the punch stroke.

40. (Cancelled)

41. (Previously Presented) The method of claim 38 wherein:

the punches are arranged in an array and have a diameter of approximately 0.11-0.25 inch, and the holes are arranged in a corresponding array and have a diameter of approximately 0.18-0.39 inch to provide a radial punch-hole clearance between the punches and the holes of approximately 0.04-0.07 inch; and

driving the punches comprises moving the punches along a punch stroke into the fiber-cement panel until the punches eject plugs from the panel in the direction of the punch stroke.

42. (Previously Presented) A method of fabricating fiber-cement soffit, comprising:

placing a cured fiber-cement panel between a punch assembly and a support assembly so that a first side of the panel faces the punch assembly and a second side of the panel faces the support assembly, the punch assembly having a punch plate and a plurality of punches having a first cross-sectional dimension coupled to the punch plate, and the support assembly having a support plate with a plurality of holes having a second cross-sectional dimension larger than the first cross-sectional dimension of the punches; and

driving the punches through only a portion of the fiber-cement panel to form a plurality of openings in the fiber-cement panel that have the first dimension of the punches at the first side of the panel and the second dimension of the holes at the second side of the panel and thereby producing a ventilated fiber-cement soffit.

43. (Previously Presented) The method of claim 42 wherein driving the punches comprises passing the punches along a punch stroke path to an intermediate depth of the fiber-cement panel without passing the punches completely through the panel and ejecting plugs from the panel in the direction of the punch stroke.

44. (Cancelled)

45. (Previously Presented) The method of claim 42 wherein:

the punches are arranged in an array and have a diameter of approximately 0.11-0.25 inch, and the holes are arranged in a corresponding array and have a diameter of approximately 0.18-0.39 inch to provide a radial punch-hole clearance between the punches and the holes of approximately 0.04-0.07 inch; and

driving the punches comprises moving the punches along a punch stroke into the fiber-cement panel until the punches eject plugs from the panel in the direction of the punch stroke.

46. (Previously Presented) The method of claim 42 wherein:

a clearance between the holes in the support plate and the punches is approximately between 4%-30% of the second dimension of the holes; and

driving the punches comprises moving the punches along a punch stroke into the fiber-cement panel until the punches eject plugs from the panel in the direction of the punch stroke.

47. (Previously Presented) The method of claim 42 wherein:

a clearance between the holes in the support plate and the punches is approximately between 4%-40% of a thickness of the fiber-cement panel; and

driving the punches comprises moving the punches along a punch stroke into the fiber-cement panel until the punches eject plugs from the panel in the direction of the punch stroke.

48. (Previously Presented) The method of claim 42 wherein:

a clearance between the holes in the support plate and the punches is approximately between 0.04-0.07 inch; and

driving the punches comprises moving the punches along a punch stroke into the fiber-cement panel until the punches eject plugs from the panel in the direction of the punch stroke.

49. (Previously Presented) A method of fabricating fiber-cement soffit, comprising:

providing a cured fiber-cement panel having a length, a width, and a thickness, wherein the thickness is approximately 0.25-0.625 inch;

placing the fiber-cement panel between a punch assembly and a support assembly so that a first side of the panel faces the punch assembly and a second side of the panel faces the support assembly, the punch assembly having a punch plate and a plurality of punches having a first cross-sectional dimension coupled to the punch plate, and the support assembly having a support plate with a plurality of

holes having a second cross-sectional dimension larger than the first cross-sectional dimension of the punches;

driving the punches along a punch stroke through at least a portion of the thickness of the fiber-cement panel to form a plurality of openings in the fiber-cement panel that have the first dimension of the punches at the first side of the panel and the second dimension of the holes at the second side of the panel; and

pressing a compressible biasing element against the first side of the fiber-cement panel as the punches move along the punch stroke and thereby producing a ventilated fiber-cement soffit.

50. (Previously Presented) The method of claim 49 wherein driving the punches comprises punching holes into the fiber-cement panel along a full length of the panel in one punch stroke.

51. (Previously Presented) The method of claim 49 wherein driving the punches comprises passing the punches completely through the panel.

52. (Previously Presented) The method of claim 49 wherein:

the punches are arranged in an array and have a diameter of approximately 0.11-0.25 inch, and the holes are arranged in a corresponding array and have a diameter of approximately 0.18-0.39 inch to provide a radial punch-hole clearance between the punches and the holes of approximately 0.04-0.07 inch; and

driving the punches comprises moving the punches into the fiber-cement panel to form openings having a dimension at the first side of the panel of approximately 0.11-0.25 inch.

53. (Previously Presented) The method of claim 49 wherein:

a clearance between the holes in the support plate and the punches is approximately between 4%-30% of the second dimension of the holes; and

driving the punches comprises moving the punches into the fiber-cement panel to form openings having a first dimension at the first side of the panel and a second dimension larger than the first dimension at the second side of the panel.

54. (Previously Presented) The method of claim 49 wherein:

a clearance between the holes in the support plate and the punches is approximately between 4%-40% of a thickness of the fiber-cement panel; and

driving the punches comprises moving the punches into the fiber-cement panel to form openings having a first dimension at the first side of the panel and a second dimension larger than the first dimension at the second side of the panel.

55. (Previously Presented) The method of claim 49 wherein:

a clearance between the holes in the support plate and the punches is approximately between 0.04-0.07 inch; and

driving the punches comprises moving the punches into the fiber-cement panel to form openings having a first dimension at the first side of the panel and a second dimension larger than the first dimension at the second side of the panel.

56-81. (Cancelled)

APPENDIX B – EVIDENCE

Attached hereto are copies of the following evidence pursuant to §§ 1.130, 1.131, or 1.132 and/or evidence entered by or relied upon by the examiner that is relevant to this appeal:

- Declaration of John T. Whitehead under 37 C.F.R. § 1.132, dated January 28, 2008, which was entered into the record in the Office Action dated April 29, 2008; and

- Second Declaration of John T. Whitehead under 37 C.F.R. § 1.132, dated October 29, 2008, which was entered into the record in the Advisory Action dated May 12, 2009.

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of: Gaidjiergis et al.

Application No.: 10/039,064 Confirmation No.: 3578

Filed: January 4, 2002 Art Unit: 1732

For: Methods And Apparatus For Manufacturing Fiber-Cement Soffits With Air Vents Examiner: P. Butler

DECLARATION of JOHN T. WHITEHEAD UNDER 37 C.F.R. § 1.132

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, John T. Whitehead, hereby declare and state:

1. I have been a shareholder of PacTool International, Inc. (PacTool) since 1994 and am currently a Vice President and the Director of Research and Development of PacTool. As a shareholder of PacTool, I have been involved with the fiber-cement industry since 1994, and I have been directly aware of the devices and processes disclosed in U.S. Patent Application No. 10/039,064.

2. I have 34 years of experience building and maintaining machines that cut, punch, fold and paste paper products, and I have approximately 14 years of experience designing, building, testing and/or maintaining machines related to cutting and punching cured fiber-cement boards and panels.

3. PacTool International has developed machines and processes for cutting cured and primed fiber-cement boards and panels to produce fiber-cement soffit coated with a primer.

4. James Hardie Building Products, Inc. (Hardie) determined that drilling holes through cured fiber-cement panels was not a viable option for producing finished soffit from cured fiber-cement panels. To the best of my knowledge, Hardie subsequently asked PacTool to design and develop equipment and processes to produce soffit with vent holes from cured and primed fiber-cement panels.

5. The fiber-cement panels used in the claimed processes are cured and primed to remove water from the panels before producing soffit because, as we understood from Hardie, coating fiber-cement material with primer after forming the vent holes would often result in the vent holes being obstructed or even fully blocked by the primer. Therefore, the moisture content of the fiber-cement panels used in the claimed processes must be low enough to accept a primer coating. Additionally, to work in the claimed processes, the fiber-cement panels have a low moisture content and are dimensionally stable so that an active drive mechanism, such as rollers and/or belts, can directly engage and drive the fiber-cement panels over the surface of the support in which the die holes are located. The cured fiber-cement panels used in the claimed processes are a fiber-cement composition that has been "pressed, cured and then cut into panels." (Paragraph [0002], lines 11-13, of U.S. Patent Application Publication No. US2002/0109257 A1.) The cured fiber-cement panels from which fiber-cement soffit is made in accordance with the claimed processes is such that drilling the panels or cutting the panels with a rotating abrasive disk produces dust. (Paragraph [0004], lines 4-7, and paragraph [0029], lines 4-6, of U.S. Patent Application Publication No. US2002/0109257 A1.)

6. The active drive mechanisms used to drive the cured fiber-cement panels through the punches/dies in the claimed processes are not suitable for directly engaging uncured filamentary mats with hydraulic binders because the active drive mechanisms would deform the uncured filamentary mats and would not be able to accurately position the uncured filamentary mats between the punches and dies.

7. Because the cured fiber-cements panels used in the claimed processes can be driven directly by active drive mechanisms, they are not supported by a separate tray that moves with the fiber-cement panels through the punching tool.

8. U.S. Patent No. 3,962,941 issued to Kober (Kober) teaches punching holes through uncured filamentary mats 3 with a hydraulic binder. A person skilled in the art would understand that Kober's filamentary mat 3 is uncured, and therefore limp, such that Kober's mat 3 must be supported by a moving tray 7 to maintain the shape of the mat 3. Further evidence that Kober's filamentary mats 3 are uncured is that the moisture content of Kober's filamentary mats 3 is sufficiently high to require a vacuum pump 27 to remove the liquid expressed from the hydraulic binder and the fiber forming the mats 3 during punching, and also because the filamentary material of Kober's mats 3 can extrude between the holes in the trays and the tubes of the dies as noted at column 2, lines 17-26 and 58-64. Kober's mats 3, therefore, are an uncured material that is limp and deformable.

9. A person skilled in the art would understand that Kober's uncured filamentary mats 3 cannot be adequately supported on the upstanding tubes 18 of the lower platen 5 that define the dies without using Kober's inventive tray 7. More specifically, Kober's tray 7 is necessary for punching holes through Kober's uncured filamentary mats 3 because the uncured filamentary material would otherwise deform during the punching process and the mats could not be readily removed from the dies.

10. A person skilled in the art would further understand that the punches 10 disclosed in Kober need to pass completely through Kober's uncured mats 3 because passing the punches 10 through only a portion of the thickness of Kober's mat 3 would not form holes completely through the mats 3. The properties of Kober's uncured mats 3 are significantly different than the cured fiber-cements panels provided in the claimed processes. As such, to the best of my knowledge, if the punches 10 disclosed in Kober did not pass completely through the uncured mats 3, then the waste material would not be fully ejected from the mats 3. More specifically, Kober inherently requires the punches 10 to pass completely through the mats 3 because (a) the material of Kober's mat 3 would be compressed and partially extruded into the tubes 18 without being fully ejected from the uncured mats 3 if the punches 10 did not pass completely through the mats 3, (b) Kober's trimming blades 25 and punches 10 are the same length and pass completely through the uncured mats 3 until the punches reach the top of the bores 11 of Kober's tubes 18, and (c) the last element of claim 1 of Kober requires pressing the punch pins through the mats, through the holes in the trays that support the mats, and into the

apertures of the dies. Kober does not otherwise expressly teach that the punch depth can be varied. Additionally, to eject waste material through the bores 11 of Kober's tubes 18, the downwardly flaring passages 19 require that the punches 10 pass completely through the uncured filamentary mats 3. More specifically, because the filamentary mats 3 are not cured, the mats would compress under the pressure of the punches 10 and the waste material would expand as it entered the flared passages 19. A person skilled in the art would understand that Kober's waste material would clog the flared passages 19 if Kober's punches 10 did not pass completely through the filamentary mats 3. As such, Kober teaches and inherently requires that the punches pass completely through the mats 3 for effective operation of Kober's process, and furthermore Kober is silent as to varying the punch depth. A person of ordinary skill in the art, therefore, would understand that Kober does not recognize punch stroke penetration depth as a result-effective variable for at least the reason that if the Kober's punches did not pass completely through Kober's uncured mats, then it would be likely that all of the holes would not form completely through Kober's uncured mats 3.

11. The Examiner's assertion that Kober indirectly teaches passing the punches through only a portion of the mat thickness based on column 3, line 65, to column 4, line 2, is also incorrect. Namely, the Examiner contends that Kober's punches 10 are slightly shorter than Kober's trimming blades 25 such that the punches 10 would not pass completely through the mats 3 when the trimming blades 25 engage the anvil strip 26. The drawings in Kober, however, are not machine fabrication drawings and do not include dimensions, but instead they are merely line drawings according to Patent Office requirements. Moreover, in Figure 3 for example, the illustrated trimming blade 25 and punch 10 have an equal length of approximately 0.85 inch from the bottom of member 9b as measured on a copy of Figure 3 printed directly from www.uspto.gov .

12. Kober expressly teaches that the diameter of Kober's punches 10 and the diameter at the top of the bores 11 in the tubes 18 (also called nipples 18) must be equal to or substantially equal to each other as Kober. (Kober at column 2, lines 2-5, and column 3, lines 32-35.) Based on (a) my understanding of Kober's uncured filamentary mat 3, (b) the punching of uncured fiber-cement boards, and (c) shearing other wood-fiber materials (i.e., paper), if Kober used the claimed punch/die-hole clearances, then the punches would likely pull fibers from Kober's

filamentary mat 3 into the claimed clearance gaps between the punches 10 and the bores 11. Such "fiber pull" into the bores 11 would result in jagged or fuzzy edges around the holes at the backside of the mats 3. The pulled fiber may also curl or spring back into the holes formed in the mat 3 as the mat 3 is lifted from the lower platen 5. A person skilled in the art, therefore, would understand (a) that Kober does not recognize the clearance between the punches and the dies as a result-effective variable, and (b) the claimed punch/die clearances are not merely an optimization or design choice that could be implemented for Kober's device.

13. Kober's uncured mats 3 would be marred if biasing elements were pressed against the upper surface of the mats 3 during the punching process. In developing the claimed processes, PacTool discovered that biasing elements with high durometers marred the surface of even cured fiber-cement panels. PacTool accordingly developed biasing elements with compressibility properties that would not mar cured fiber-cement. Kober, on the other hand, teaches that the filamentary mats 3 are sufficiently deformable to extrude through the spaces between the openings of the tray and the tubes projecting from the lower platen. As such, Kober's filamentary mats 3 are sufficiently deformable that biasing elements, and particularly biasing elements for metal application, pressing into the mats would mar the surfaces of the mats 3 and leave ring-shaped depressions around the holes.

14. Based on my understanding of Kober, my experience with punching cured fiber-cements panels to produce finished fiber-cement soffit, and my experience with other wood-fiber products (i.e., paper), Kober's device and process for punching holes in uncured filamentary mats 3 would not be used to punch vent holes in cured fiber-cement panels that are in a state in which cutting the fiber-cement panels with a rotating abrasive disk would create dust (i.e., a cured state that is primed or ready to receive a coating of primer). First, as explained above in paragraph 10, a person skilled in the art would further understand that Kober teaches and requires the punches 10 to pass completely through Kober's mat 3, which causes delamination problems in cured fiber-cement panels. Second, for the reasons explained above in paragraph 11, Kober teaches and effectively requires a close tolerance between the diameter of Kober's punches 10 and the diameter of Kober's bores 11 that would not work for punching vent holes in cured fiber-cement panels to form finished soffit because such tight tolerances significantly increase the

amount of force required to punch the vent holes in cured fiber-cement, which in turn causes significant wear and/or breakage of the punches. Therefore, a person of ordinary skill in the art would not modify Kober to have the claimed punch/die-hole clearances and/or the claimed punch stroke lengths for the reasons explained above in paragraphs 10 and 11.

15. A person skilled in the art would not punch vent holes in the cured boards taught in U.S. Patent No. 4,580,374 issued to Quinnell (Quinnell) using the device and process taught in Kober because the close punch/die-hole clearances required by Kober and the full punch stroke length also required by Kober are not suited for punching holes through cured fiber-cement boards or panels as explained above in paragraph 14. Additionally, column 1, lines 15-28, of Quinnell cited by the Examiner merely teach that it is known to use a wooden soffit board with a plastic fascia sheet or sheets of other rigid materials such as asbestos cement. This portion of Quinnell, however, does teach that the wooden boards or asbestos cement sheets have vent holes, and it is not inherent that the boards are ventilated because fiber-cement soffit boards are manufactured without ventilation openings through the boards. Quinnell addresses the need for adequate ventilation at column 2, lines 25-45, and expressly teaches that the production of slots in the soffit board itself adds expense and is "unsatisfactory" in the context of low cost systems. Thus, the portion of Quinnell cited by the Examiner as teaching the use of vented soffit boards made from asbestos cement does not in fact teach that the boards are vented, but rather the portion of Quinnell that addresses ventilation teaches that it is unsatisfactory to form holes through the asbestos cement soffit boards.

16. I further declare that all statements herein made of my own knowledge are true, and that statements made on information or belief are believed to be true; and further, that the statements are made with the knowledge that the making of willful or false statements or the like is punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and may jeopardize the validity of any patent issuing from this patent application.

John T. Whitehead

John T. Whitehead

1/28/08

Date

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of: Gaidjiergis et al.

Application No.: 10/039,064 Confirmation No.: 3578

Filed: January 4, 2002 Art Unit: 1732

For: Methods And Apparatus For Manufacturing Fiber-Cement Soffits With Air Vents Examiner: P. Butler

SECOND DECLARATION of JOHN T. WHITEHEAD UNDER 37 C.F.R. § 1.132

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, John T. Whitehead, hereby declare and state:

1. I have been a shareholder of PacTool International, Inc. (PacTool) since 1994 and am currently a Vice President and the Director of Research and Development of PacTool. As a shareholder of PacTool, I have been involved with the fiber-cement industry since 1994, and I have been directly aware of the devices and processes disclosed in U.S. Patent Application No. 10/039,064.

2. I have 34 years of experience building and maintaining machines that cut, punch, fold and paste paper products, and I have approximately 14 years of experience designing, building, testing and/or maintaining machines related to cutting and punching cured fiber-cement boards and panels.

3. PacTool International has developed machines and processes for cutting cured and primed fiber-cement boards and panels to produce fiber-cement soffit coated with a primer.

4. The statements in this declaration are in addition to the statements in my first declaration entitled DECLARATION of JOHN T. WHITEHEAD UNDER 37 C.F.R. § 1.132 dated January 28, 2008 ("First Declaration").

5. The present declaration is necessitated by the Examiner's new assertion in the Final Office Action dated April 29, 2008, that the term "cured" contained in the pending claims is not sufficiently described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed subject matter.

6. The present declaration is further necessitated by the Examiner's incorrect finding that the First Declaration was insufficient as referring only to the system and not to individual claims. The First Declaration directly traversed the Examiner's grounds for rejecting claims 19, 25, 38, 42 and 49 in the previous Final Office Action dated July 26, 2007, and the evidence provided in the First Declaration was commensurate with the scope of those rejections. The First Declaration was responsive to the rejections and presented facts to overcome those rejections, and therefore the First Declaration inherently referred to the rejected claims and was commensurate with those claims. Nonetheless, for purposes of clarity, the First Declaration refers to the rejections of claims 19, 25, 38, 42 and 49, and the present declaration refers to the rejections of claim 19, 25, 31, 38, 42 and 49 in the outstanding Final Office Action.

7. Figure 3B and paragraph [0027] of the originally filed application show and described that the punches penetrate to an intermediate depth D_i such that "the fiber-cement panel 14 fractures along approximately conical paths to eject frustoconical plugs 18 from the fiber-cement panel 14." (emphasis added.) The intermediate depth in this embodiment, for example, is "approximately 0.0625-0.1875 inch for a 0.25-0.31625 inch thick panel 14." This corresponds to a penetration depth of 19.76% to 75% of the thickness of the panel. A person skilled in the art would understand that fiber-cement must be cured so that it is dry enough to fracture along a conical path and create frustoconical plugs when the intermediate punch depth D_i is only 19.76% to 75% of the thickness of the panel. Therefore, in addition to my statements in Paragraph 5 of the First Declaration, the originally filed application sufficiently described the invention to reasonably convey to a person of ordinary skill in the art that the inventors had possession of the claimed subject matter at the time the application was filed.

8. Figure 5 and paragraphs [0035] and [0036] of the originally filed application show and describe that, before being punched, fiber-cement panel 14 is placed between rollers of a first active roller assembly 174 that indexes the fiber-cement panel 14 through the punch assembly 40. (emphasis added.) Figure 5, moreover, shows that the fiber-cement panel 14 supports itself (a) between the first passive roller array 170a and the active roller assembly 174 and (b) between the first active roller assembly 174 and the support assembly 60. The fiber-cement panel 14 is even shown as supporting itself in a cantilevered arrangement downstream of the first active roller assembly 174 until the leading edge of the fiber-cement panel is supported by the support assembly 60. A person skilled in the art would accordingly understand the following:

(a) The fiber-cement panel 14 must be sufficiently cured to have a low moisture content and set binder so that the fiber-cement panel can support itself as shown in Figure 5.

(b) An uncured fiber panel, and in particular the mat with hydraulic binder that requires a support tray for punching as taught by Kober, could not support itself as shown in Figure 5 and described in paragraphs [0035] and [0036].

(c) The fiber-cement panel 14 is in a cured state "pre-punching" to support itself through the active rollers 174 and across the punch assembly 40 as shown and described.

Therefore, the originally filed application sufficiently described the invention to reasonably convey to a person of ordinary skill in the art that the inventors had possession of the claimed subject matter at the time the application was filed.

9. I further declare that all statements herein made of my own knowledge are true, and that statements made on information or belief are believed to be true; and further, that the statements are made with the knowledge that the making of willful or false statements or the like is punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and may jeopardize the validity of any patent issuing from this patent application.

John T. Whitehead

John T. Whitehead

10/29/08

Date

APPENDIX C – RELATED PROCEEDINGS

No related proceedings are referenced in II. above, hence copies of decisions in related proceedings are not provided.